

# Technology: Moving Forward **DRAFT**



October 23, 2018

# Tonight's Areas of Focus

- 🐼 Vision and Goals
- 🐼 Instructional Focus
- 🐼 Policies and Compliance
- 🐼 Infrastructure

# District Strategic Objectives

To achieve its mission and vision, and to provide for the future of its students, the Irvington Union Free School District will:

1. Provide students with a rigorous, comprehensive, enriched and diversified curricula that will prepare students to achieve their personal best, and will integrate technology in their learning.
2. Encourage innovation, creativity and risk taking to inspire a dynamic learning environment.
3. Foster the social and emotional growth of all students and promote a culture where students are active participants in society.
4. Support educators through targeted professional learning and opportunities for collaboration.
5. Strengthen local connections to and ownership of our schools.
6. Ensure the fiscal health of the district and provide for a high quality learning environment.

# Theories of Action

If we provide students with rigorous authentic, learning experiences rooted in a comprehensive curriculum, then they will acquire the knowledge, skills and dispositions of successful 21<sup>st</sup> century learners that will prepare them to thrive in a rapidly evolving global society.

## Goal

In order to develop successful 21<sup>st</sup> century learners that will be prepared to thrive in a rapidly evolving global society, the Irvington School District will:

- 🐼 provide students with rigorous authentic, learning experiences
- 🐼 develop a comprehensive curriculum that includes:
  - 🐼 aligned and articulated content
  - 🐼 defined learning outcomes
  - 🐼 a balanced and systematic approach to assessment
- 🐼 21<sup>st</sup> Century skills and dispositions- problem solver, flexible thinker, collaborative learner, effective communicator, empathetic citizen, self-reliant, reflective, creative, risk-taker

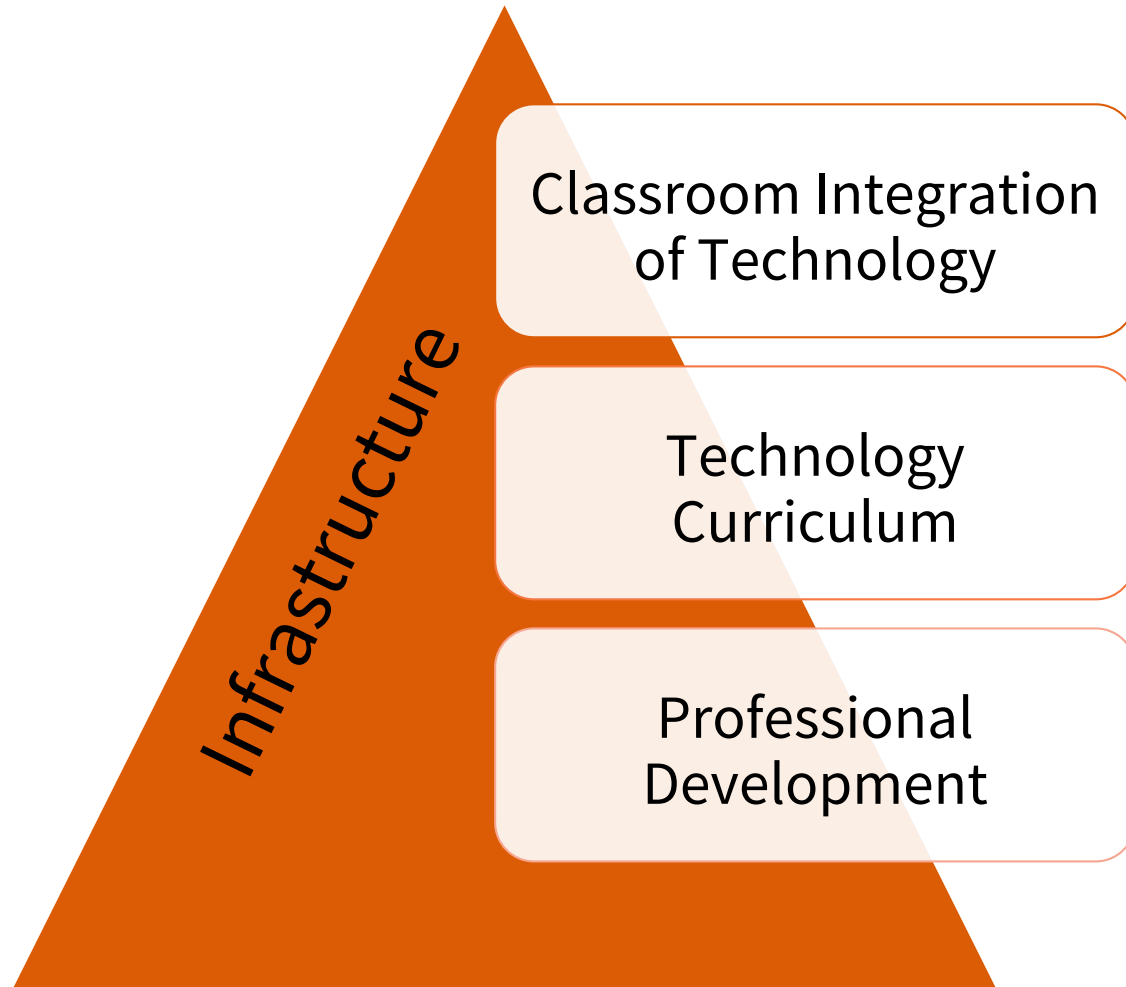
# Instructional Goals:

- ❧ Implement instructional practices that elevate student thinking and understanding
- ❧ Develop a balanced assessment system that measures students' content knowledge, skills, and dispositional thinking

# Creating a Vision

*All students should possess essential technology skills and participate in critical technology learning experiences that will equip them for success in our schools and prepare them for the challenges of their future.*

# Framework for Thinking About Technology



# 2014-2018

## Technology Framework Goals

- 🌀 Technology Goal #1: Mobile Student Centered Computing
- 🌀 Technology Goal #2: Interactive Multimedia Capable Peripherals
- 🌀 Technology Goal #3: Professional Development
- 🌀 Technology Goal #4: Electronic Resources
- 🌀 Technology Goal #5: Curriculum Integration
- 🌀 Technology Goal #6: Innovation
- 🌀 Technology Goal #7: Global Education and Citizenship



# Partnerships, Collaboration & Leadership

- 🐼 Dows Lane
  - Focus Areas: Goals #1, 3, 5, 6
  - Work: Site Visits, Genius Hour, Technology Model Exploration
- 🐼 Main Street School
  - Focus Areas: Goals #1, 3, 5, 6, 7
  - Work: Building Wide Initiatives (multi-year) around Global Education
- 🐼 Irvington Middle School
  - Focus Areas: Goals #1, 3, 5, 6
  - Work: Device planning and surveys, PD - Expeditions & Chromebooks
- 🐼 Irvington High School
  - Focus Areas: Goals #1, 3, 5
  - Work: PD - Google Classroom, Assessment
- 🐼 Pupil Personnel Services
  - Focus Areas: Goals #1, 3, 5
  - Creation of Assistive Technology Committee and development of Assistive Technology Plan & Goals

All learners will have access to technology in an anytime, anywhere, one-to-one computing environment as appropriate and relevant to instructional goals.

## Technology Goal #1: Mobile Student Centered Computing



# Goal #1: Where are we now?

- 🐼 As a result of access to technology, in particular chromebooks, classroom instruction and planning reflects opportunities for students to
  - Develop projects individually in a 1:1 model (one device per student)
  - Collaborate in G Suite products (such as Docs) in small groups/pairs
  - Work in larger groups with designated students recording data and/or entering information using a Chromebook
  
- 🐼 Devices used within a classroom in flexible spaces
  - Station work (at Dows and MSS) allowing for students to work in targeted focus areas.
  - Reconfiguring learning spaces at MS to better facilitate collaboration and utilize technology more effectively
  - Better accommodate student learning needs at HS while providing students with necessary resources to collaborate and work.

All learners will have access to technology that allows for consumption and interaction with a variety of information and multimedia.

## Technology Goal #2: Interactive Multimedia Capable Peripherals



# Technology Goal #2: Where are we now?

Devices - Teachers enhance instruction and deepen learning through the integration of various forms of information and multimedia content.

- Desktops
- Laptops
- Chromebook
- iPads
- Mobile Devices (Expeditions)

Peripherals - Classrooms include resources that support learning for all students within our schools.

- Printers
- Scanners
- Document Cameras
- VR (Expeditions)

Professional Development (PD) will be a top priority for the success of all learners. PD must be integrated within all content areas and grade levels. Also, PD must be ongoing due to the simultaneous learning of how to use technology, the integration of technology in instruction, and the continual emergence of new and improved technologies and practices. PD must be differentiated to address the needs, aptitudes, and styles of adult learners. It is expected that all staff members will seek out professional development within a technology structure that engages, encourages, and empowers all learners.

## Technology Goal #3: Professional Development



# Opportunities

## Productivity, Collaboration, & Assessment

- 🐼 All Staff:
  - Google PD Team Support
- 🐼 Individual Building - professional learning specific to needs of whole faculty, groups and individuals
  - SAMR Model
  - Instruction - Google Hangouts, Expeditions
  - Assessment - Google Forms, Flipgrid, Doctopus/Goobric, Flubaroo
- 🐼 Master Class Workshops
  - Google Infused Classroom, Dive into Inquiry, HyperDocs
  - Student Voice Infused Classroom
- 🐼 PLTW Training - All PLTW courses require extensive training prior to implementation

Electronic resources and tools must be readily available to support contemporary teaching and learning environments.

## Technology Goal #4: Electronic Resources





# Technology Goal #4: Where are we now?

Examples of electronic resources used:

- 🐼 Productivity/Instructional
  - SMART Notebook
  - G Suite for Education (Classroom, Sheets, Slides)
  - NewsELA
  - Book Creator
- 🐼 Assessment
  - Castle Learning
  - G Suite for Education (Forms)
  - Quizlet
- 🐼 Collaboration
  - G Suite for Education (Hangouts, Docs)
  - Flipgrid
  - Padlet

The International Society for Technology in Education National Educational Technology Standards (ISTE NETS) and the New York State Educational Technology Standards will be integrated into all K-12 curricula. Instructional stakeholders will contribute to developing and updating technology-integrated curriculum maps and resources. Teachers will regularly integrate technology as defined within their respective curriculum.

## Technology Goal #5: Curriculum Integration



# Technology Goal #5: Where are we now?



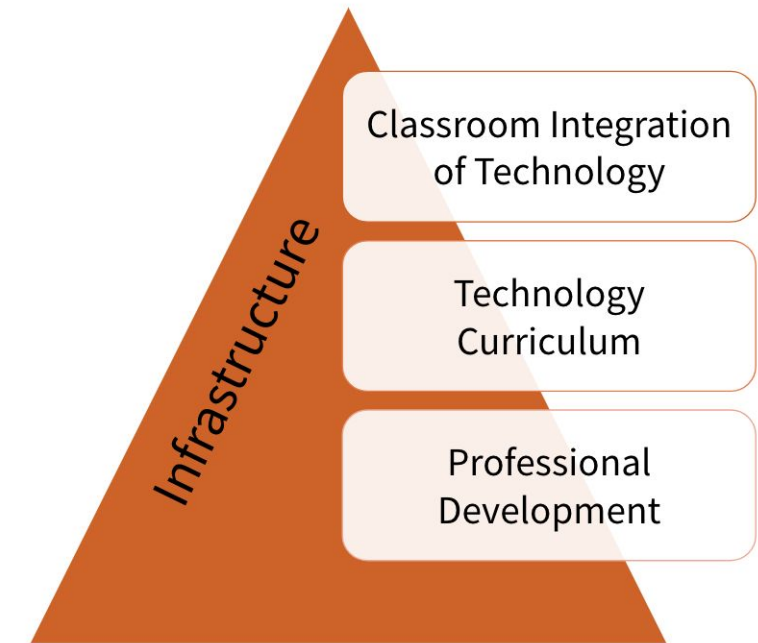
## Instructional

- Productivity
- Collaboration
- Assessment



## Curriculum

- PLTW
- Amplify
- Standards Based Instruction
- Computer Science



# Instructional Curriculum Integration



## Productivity

- Teachers using Google Classroom to organize digital resources and distribute/collect/grade assignments.
- Students at Dows using Book Creator to write and publish stories.



## Collaboration

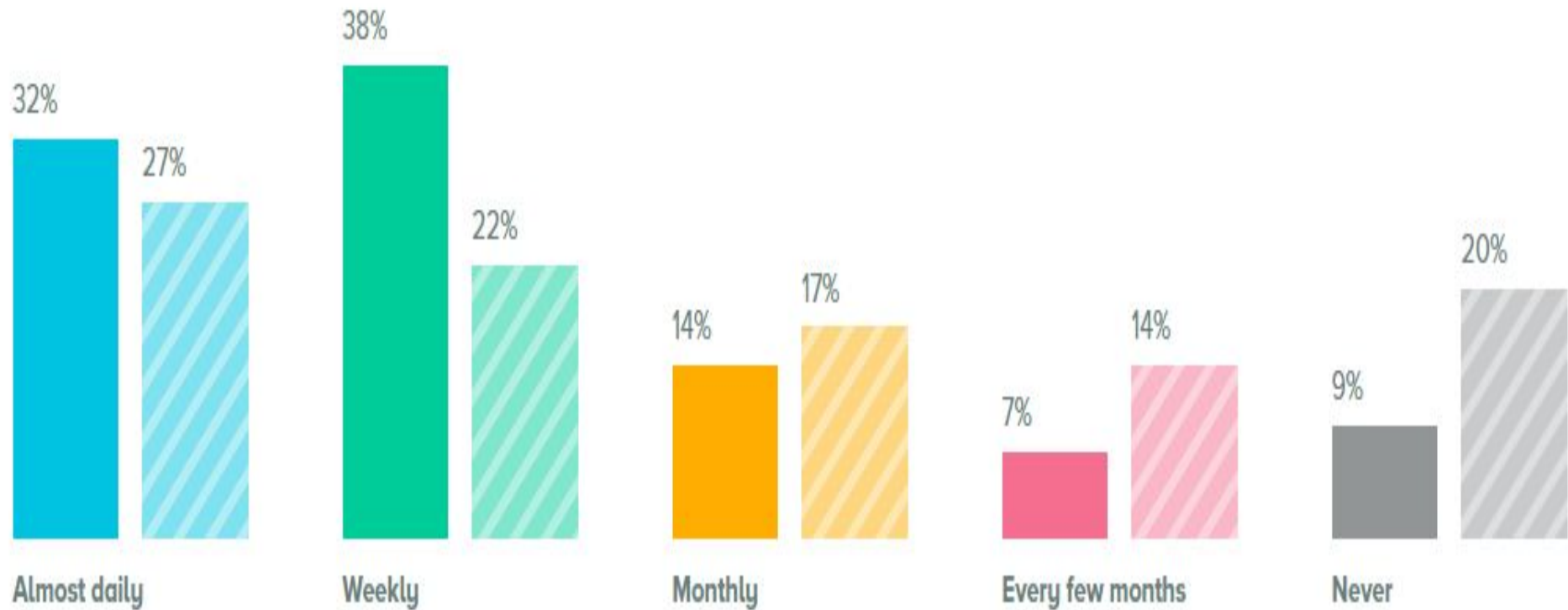
- Students at MSS utilizing Flipgrid to record and present work with peers then providing feedback.
- Students at HS develop shared lab documentation, tables, and graph utilizing observational data.



## Assessment

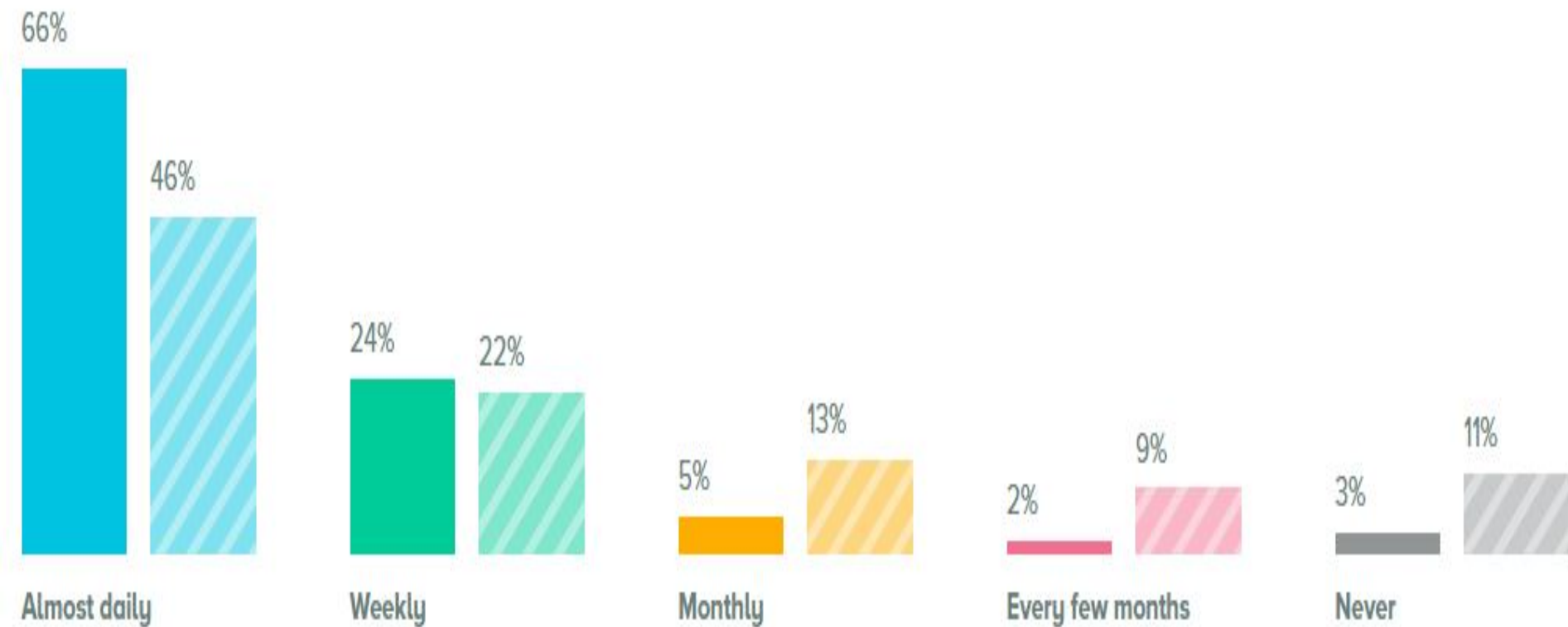
- Exit tickets in MS to provide immediate feedback on lessons using Google Forms and Flubaroo

# Teacher Frequency of Computer Use in Instruction



Source: Fall 2017 Clarity Data Collection (Solid) vs. Fall 2015 Clarity Data Collection (Stripes)

# Student Frequency of Computer Use in Instruction



Source: Fall 2017 Clarity Data Collection (Solid) vs. Fall 2015 Clarity Data Collection (Stripes)

# STEM Education

## **Science, Technology, Engineering, & Mathematics**

“STEM-related disciplines are responsible for many of the societal innovations that make our world better.”

“As we look to the future, improving the size and the composition of the STEM education pipeline will strengthen our country’s global competitiveness and unleash new innovations that will propel society forward.”

~Rodney Adkins, Forbes, 2012

Rodney C. Adkins, senior vice president of [IBM](#)’s Systems & Technology Group; National Academy of Engineering inductee; and serves on the national board of the Smithsonian Institution.

# Instruction & Program

- 🐦 Project Lead the Way (PLTW)
  - Two units in Grades K-5
    - Units of Study - (1) Engineering (1) Computer Science
  - PLTW Curriculum in Grades 7 & 8
  - 8<sup>th</sup> Grade Exploratory to allow for introduction and acceleration
  - HS Engineering
- 🐦 6th Grade Technology Program
- 🐦 Computer Science (HS)



# Elementary - Launch K-5

Kindergarten	Grade 1	Grade 2
Exploring Design Animals & Algorithms	Light and Sound Animated Storytelling	Grids and Games Properties of Matter
Grade 3	Grade 4	Grade 5
Programming Patterns Stability and Motion: Forces and Interactions	Input/Output: Computer Systems Energy: Collisions	Robotics and Automation Robotics and Automation (Challenge)

# Middle School & High School PLTW & Computer Science

- 🦉 Technology (Grade 6)
- 🦉 PLTW Gateway
  - Design and Modeling (Grade 7)
  - Automation and Robotics (Grade 8)
- 🦉 8<sup>th</sup> Grade Exploratory to allow for introduction and acceleration
  - Green Architecture
  - Energy and the Environment
  - Computer Science for Innovators and Makers

- 🦉 PLTW Engineering
  - Introduction to Engineering and Design
  - Principles of Engineering
  - Civil Engineering and Architecture
- 🦉 Computer Science
  - Computer Programming 1
  - Computer Programming 2
  - AP Computer Science A
  - AP Computer Science Principles

# ISTE Standards in Action

## What do we want students and teachers to know and be able to do?

### Technology Goal #5: Curriculum Integration

Observable Teacher Behavior	ISTE Standard
Teachers demonstrate awareness and knowledge of their respective technology integrated curriculum.	<p><i>2. Design and develop digital age learning experiences and assessments</i></p> <p>Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the Standards</p> <p>a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity</p> <p><i>5. Engage in professional growth and leadership</i></p> <p>Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.</p> <p>c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning</p>
Observable Student Behavior	ISTE Standard
Students use technology in productive ways to improve learning.	<p><i>4. Critical thinking, problem solving, and decision making</i></p> <p>Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.</p> <p>a. Identify and define authentic problems and significant questions for investigation</p> <p>c. Collect and analyze data to identify solutions and/or make informed decisions</p>

# New ISTE Standards

## International Society for Technology in Education

### Teacher Standards

#### **Empowered Professional**

- Learner
- Leader
- Citizen

#### **Learning Catalyst**

- Collaborator
- Designer
- Facilitator
- Analyst

### Student Standards

-  Empowered Learner
-  Digital Citizen
-  Knowledge Constructor
-  Innovative Designer
-  Computational Thinker
-  Creative Communicator
-  Global Collaborator

Innovation in the best practices of technology integration will be supported and encouraged.

## Technology Goal #6: Innovation



# Technology Goal #6: Innovation

- 🐼 Increase opportunities for student voice, choice, and agency
- 🐼 Passion-based projects - Genius Hour
- 🐼 Student Innovation Fund
- 🐼 Think Tanks
  - Student Innovation - designed to solve problems faced in our schools using Design Thinking framework
  - Capstone - explore possibilities for project based capstone assessments
- 🐼 Flexible Learning Spaces

Teachers and students will use technology to promote engagement in the global society. Global citizenship will be an underlying focus throughout all curriculum areas in an effort to prepare students for engaged living in a culturally diverse and rapidly changing world.

## Technology Goal #7: Global Education and Citizenship



# Technology Goal #7: Global Education and Citizenship

- 🐦 Global Connections
  - Mystery Hangouts
  - Global Read Alouds
  - Author or Guest Video Conferences

- 🐦 Geo Tools
  - Google Expeditions (Virtual Field Trips & Augmented Reality)
  - Google Earth
  - MyMaps



# Delivering the Vision

- 🐦 Clearly define goals & expectations for the use and integration of technology
- 🐦 Ensure alignment of professional development to support teaching and learning
- 🐦 Increase inclusion of standards, based on a continuum of knowledge, skills, applications and thinking
- 🐦 Integrate technology in the unit planning process
- 🐦 Measure growth to support the identification of needs and planning
- 🐦 Refine infrastructure plan to meet current needs and future growth

# Action Steps

Simply stated, we must:

- 🐦 Embed technology standards in our curricula
- 🐦 Continue to include strategies and resources in unit planners
- 🐦 Provide teachers with skills and resources to utilize technology within their instruction
- 🐦 Continue to build out an infrastructure to support technology-rich learning
- 🐦 Facilitate the process for the revision of the current Technology Plan

# Policies and Compliance



# Existing Structures

- 🐦 Technology Plan
  - Development of 2018-2021 Plan
- 🐦 Technology Policies
  - Computer Use in Instruction / Acceptable Use Policy (4526)
  - Internet Safety (4526.1)
  - Instructional Technology (8260)
  - Email Policy (5693)
  - Password Policy (5694)
  - Social Networking Policy (5695)

# Data Privacy

Our district is committed to ensuring that student data is kept safe and secure.

In order to accomplish this, we:

- 🐦 Joined the RIC One Data Privacy and Security Service (DPSS)
- 🐦 Prepared a public webpage for parents (to launch in November 2018 under the technology webpage) which will show services utilized by district
- 🐦 Are developing additional resources (also to be launched under the technology webpage) to support parents in their understanding of data privacy issues faced by students both inside and outside of school with resources to provide additional support.

# Infrastructure



# Infrastructure

## Hardware

### Teaching & Learning

Teachers use tools to engage students and deepen understanding

- Classroom Computers
- Chromebooks/iPads
- SmartBoards
- Document Cameras

### Systems & Infrastructure

- Servers
- Wifi

## Software

### Teaching & Learning

- Web-based applications
- Tool-based applications
- Content-specific
- Blogs
- Research

### Systems & Infrastructure

- Student Information System (eSchool Plus)
- Finance and Human Resources
- Observation & Evaluation

# Existing Hardware



## **Computers/Mobile Devices**

- Physical Desktops: 389 (560 in 2015)
- Laptops: 70
- Chromebooks: 735 (181 Chromebooks and iPads in 2015)
- iPads: 124
- Virtualized Workstations: 17 (138 in 2015)



**Current Status of Wireless:** Campus (Saturation), MSS/Dows (Coverage)



**Bandwidth:** 300Mbps to the Internet, 10Gbps building-to-building



# Human Infrastructure

## **Teaching & Learning**

PLTW, Technology & Computer Science

1.3 Dows

.7 Main Street

1.4 Middle School

1.4 High School

## **Infrastructure**

1.0 Director of Technology & Innovation/CIO

1.0 Data Analyst

0.5 Technology Clerical Support

2.0 EduTek Engineers

2.0 Technology Aides

# Summary

- 🐼 A tremendous focus has been placed on the role of technology in our students' education
  - Structures created to:
    - Inform future actions
    - Plan for curriculum (& course) development
    - Equip faculty to identify and employ technology to support learning
  - Specific attention to:
    - Instruction of technology
    - Integration of technology
    - Professional learning
    - Expansion of infrastructure to support learning
- 🐼 We have progressed and created a pathway for ongoing growth, and development; building a foundation that supports current needs with a lens toward the future

# Considerations that take a village . . .

- ❧ What is the relationship between growth and staffing?
- ❧ How do we balance the needs and growth of hardware and changing technologies?
- ❧ Do Board of Education policies continue to support our Technology Goals?

Q & A

